AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended): A brushless motor comprising:

a stator; and

a rotor having a lateral surface opposed to said stator, wherein said stator includes:

a plurality of radially extending iron cores, and

a plurality of windings for respectively generating magnetic fields in said iron cores, [[and]]

wherein said rotor includes:

a plurality of permanent magnets, and

magnetic force line induction bodies located between said permanent magnets and said lateral surface, and

wherein a number of said windings is N, and a number of said permanent magnets is P, and P is greater than N.

Claim 2 (currently amended): A brushless motor ~~according to claim 1,~~ comprising:

a stator; and

a rotor having a lateral surface opposed to said stator, wherein said stator includes:

a plurality of radially extending iron cores, and

a plurality of windings for respectively generating magnetic fields in said iron cores,

wherein said rotor includes:

a plurality of permanent magnets, and

magnetic force line induction bodies located between said permanent magnets and said lateral surface, and

wherein an output torque T of said brushless motor is given by a following equation:

$$T = p \{ \varphi \cdot I_a \cdot \cos(\beta) + (L_q - L_d) I_a^2 \cdot \sin(2\beta)/2 \},$$

p being a half of a number of said plurality of permanent magnets, φ being a maximum armature flux linkage generated by said plurality of permanent magnets, I_a being an armature current, β being a phase of said armature current, L_d being a direct-axis inductance of said rotor, and L_q being a quadrature-axis inductance of said rotor, while the following equation:

$$L_q \fallingdotseq L_d,$$

does not hold.

Claim 3 (previously amended): A brushless motor according to claim 1, wherein said rotor has a plurality of holes into each of which said plurality of permanent magnets are inserted in an axis direction of said rotor.

Claim 4 (original): A brushless motor according to claim 1, wherein three-phase direct currents are provided for said plurality of windings.

Claim 5 (original): A brushless motor according to claim 4, wherein said plurality of windings include:

a first set of windings, and

a second set of windings, and

wherein said first set of three-phase windings and said second set of three-phase windings are arranged to be symmetrical with respect to a line.

Claim 6 (currently amended): A brushless motor ~~according to claim 4~~ comprising:

a stator; and

a rotor having a lateral surface opposed to said stator, wherein said stator includes:

a plurality of radially extending iron cores, and

a plurality of windings for respectively generating magnetic fields in said iron cores,

wherein said rotor includes:

a plurality of permanent magnets, and

magnetic force line induction bodies located between said permanent magnets and said lateral surface,

wherein three-phase direct currents are provided for said plurality of windings,

wherein said windings ~~includes~~ include:

a first group of three-phase windings, and

a second group of three-phase windings, and

wherein windings having said same phase of said first and second groups of three-phase windings are adjacent to each other in the same rotation direction, and

wherein said first group of three-phase windings include:

a first set of three-phase windings, and

a second set of three-phase windings, and

said first set of three-phase windings and said second set of three-phase windings are arranged to be approximately geometrically symmetrical with respect to a line, said second group of three-phase windings include another first set of three-phase windings and another second set three-phase windings, and said other first set three-phase windings and said other second set of three-phase windings are arranged to be approximately geometrically symmetrical with respect to a line.

Claim 7 (original): A brushless motor according to claim 1, wherein a number of said windings is N, and a number of said permanent magnets is P, and said P is greater than said N.

Claim 8 (currently amended): A brushless motor according to claim [[7]] 1, wherein one of prime factors of said P is greater than any of prime factors of said N.

Claim 9 (original): A brushless motor according to claim 8, wherein said prime factors of said N includes 2 and 3, and

said prime factor of said P includes 2 and 7.

Claim 10 (currently amended): A brushless motor according to claim [[7]] <u>1</u>, said P satisfies the following equation:

$12 \leq P \leq 30.$

Claim 11 (currently amended): A brushless motor according to claim [[7]] <u>1</u>, wherein said N is 12 and said P is 14.

Claim 12 (currently amended): A brushless motor according to claim [[7]] <u>1</u>, wherein a section of said permanent magnet on a flat plane vertical to a central axis of said rotor is rectangular,

said rectangle has short sides and long sides longer than said short sides, and

said long sides are opposed to said lateral surface.

Claim 13 (currently amended): A brushless motor ~~according to claim 1~~ <u>comprising:</u>

<u>a stator; and</u>

<u>a rotor having a lateral surface opposed to said stator, wherein said stator includes:</u>

<u>a plurality of radially extending iron cores, and</u>

a plurality of windings for respectively generating magnetic fields in said iron cores,

wherein said rotor includes:

a plurality of permanent magnets, and

magnetic force line induction bodies located between said permanent magnets and said lateral surface, and

wherein said permanent magnet has a shape of a substantially rectangular parallelepiped, and

a distance d between a center of said rotor and magnetic pole surfaces opposed to said lateral surface among surfaces of said plurality of permanent magnets satisfies a following equation:

~~$d \leq r - D/10$~~ $d \geq r - D/10$,

where

$D = \pi r / P$, r being a radius of said rotor, and P is a number of said permanent magnets.

Claim 14 (currently amended): A brushless motor ~~according to claim 1~~ comprising:

a stator; and

a rotor having a lateral surface opposed to said stator, wherein said stator includes:

a plurality of radially extending iron cores, and

a plurality of windings for respectively generating magnetic fields in said iron cores,

wherein said rotor includes:

a plurality of permanent magnets, and

magnetic force line induction bodies located between said permanent magnets and said lateral surface, and

wherein a following equation:

$\cancel{0 \leq (L_q L_d) / L_d \leq 0.3,}$ $\underline{0 \leq (L_q - L_d) / L_d \leq 0.3,}$

holds, where L_q is a quadrature-axis inductance of said rotor, and L_d is a direct-axis inductance of said rotor.

Claim 15 (withdrawn): A brushless motor according to claim 1, wherein said magnetic force line inducing bodies include a direct axis magnetic force line inducing body for inducing magnetic fluxes in a direct axis direction of said rotor, and

wherein a gap extending in a quadrature axis direction of said rotor is formed in said rotor.

Claim 16 (withdrawn): A brushless motor according to claim 15, wherein a following equation:

$0 \leq (L_q - L_d) / L_d \leq 0.3,$

holds where

L_q: quadrature axis inductance of said rotor, and

L_d: direct axis inductance of said rotor.

Claim 17 (withdrawn): A motor-driven vehicle comprising:

a plurality of drive wheels;

a power supply voltage supplier for supplying a power supply voltage; and

a brushless motor provided with said power supply voltage to drive said plurality of drive wheels, wherein said brushless motor includes:

a stator; and

a rotor having a lateral surface opposed to said stator, and said stator comprises:

a plurality of radially extending iron cores, and

a plurality of windings for respectively generating magnetic fields in said iron cores, and said rotor comprises:

a plurality of permanent magnets, and

magnetic force line induction bodies located between said permanent magnets and said lateral surface.

Claim 18 (withdrawn): A motor-driven vehicle according to claim 17, wherein an output torque T of said brushless motor is given by a following equation:

$$T = p\{\phi\ I_a\ \cos\ (\beta) + (L_q - L_d)I_a^2 \sin(2\beta)/2\},$$

p being a half of a number of said plurality of permanent magnets, ϕ being a maximum armature flux linkage generated by said plurality of permanent magnets, I_a being an armature current, β being a phase of said armature current, L_d being a direct-axis inductance of said rotor, and L_q being a quadrature-axis inductance of said rotor, while the following equation:

$L_q \fallingdotseq L_d$,

does not hold.

Claim 19 (withdrawn): A motor-driven vehicle according to claim 17, wherein said rotor has a plurality of holes into each of which said plurality of permanent magnets are inserted in an axis direction of said rotor.

Claim 20 (withdrawn): A motor-driven vehicle according to claim 17, wherein three-phase direct currents are provided for said plurality of windings.

Claim 21 (withdrawn): A motor-driven vehicle according to claim 20, wherein said plurality of windings include:

a first set of windings, and

a second set of windings, and

wherein said first set of three-phase windings and said second set of three-phase windings are arranged to be symmetrical with respect to a line.

Claim 22 (withdrawn): A motor-driven vehicle according to claim 20, wherein said plurality of windings include:

a first group of three-phase windings, and

a second group of three-phase windings, and

wherein phase synchronous windings having said same phase of said first and second groups of three-phase windings are adjacent to each other in the same rotation direction, and

wherein said first group of three-phase windings comprise:

a first set of three-phase windings, and

a second set of three-phase windings, and said first set of three-phase windings and said second set of three-phase windings are arranged to be approximately geometrically symmetrical with respect to a line, and

wherein said second group of three-phase windings comprise:

another first set of three-phase windings and

another second set three-phase windings, and said other first set three-phase windings and said other second set of three-phase windings are arranged to be approximately geometrically symmetrical with respect to a line.

Claim 23 (withdrawn): A motor-driven vehicle according to claim 17, wherein a number of said windings is N, and a number of said permanent magnets is P, and said P is greater than said N.

Claim 24 (withdrawn): A motor-driven vehicle according to claim 23, wherein one of prime factors of said P is greater than any of prime factors of said N.

Claim 25 (withdrawn): A motor-driven vehicle according to claim 24, wherein said prime factors of said N includes 2 and 3, and

said prime factor of said P includes 2 and 7.

Claim 26 (withdrawn): A motor-driven vehicle according to claim 23, said P satisfies the following equation:

$12 \leq P \leq 30$.

Claim 27 (withdrawn): A motor-driven vehicle according to claim 23, wherein said N is 12 and said P is 14.

Claim 28 (withdrawn): A motor-driven vehicle according to claim 23, wherein a section of said permanent magnets on a flat plane vertical to a central axis of said rotor is rectangular,

said rectangle has short sides and long sides longer than said short sides, and

said long sides are opposed to said lateral surface.

Claim 29 (withdrawn): A motor-driven vehicle according to claim 17, wherein said permanent magnet has a shape of a substantially rectangular parallelepiped, and

a distance d between a center of said rotor and magnetic pole surfaces opposed to said lateral surface among surfaces of said plurality of permanent magnets satisfies a following equation:

$d \leq r - D/10,$

where

$D = 2\pi r / P,$

r being a radius of said rotor, and P being a number of said permanent magnets.

Claim 30 (withdrawn): A motor-driven vehicle according to claim 17, wherein a following equation:

$0 \leq (L_q\ L_d) / L_d \leq 0.3,$

holds, where L_q is a quadrature-axis inductance of said rotor, and L_d is a direct-axis inductance of said rotor.

Claim 31 (withdrawn): A motor-driven vehicle according to claim 17, wherein said magnetic force line inducing bodies comprise a direct axis magnetic force line inducing body for inducing magnetic fluxes in a direct axis direction of said rotor, and

wherein a gap extending in a quadrature axis direction of said rotor is formed in said rotor.

Claim 32 (withdrawn): A motor-driven vehicle according to claim 31, wherein a following equation:

$0 \leq (L_q\ L_d) / L_d \leq 0.3,$

holds, where L_q is a quadrature-axis inductance of said rotor, and L_d is a direct-axis inductance of said rotor.

Claim 33 (withdrawn): An electric car comprising:

a plurality of drive wheels;

an accelerator pedal;

a power supply voltage supplier for supplying a power supply voltage based on a movement of said accelerator pedal; and

a brushless motor provided with said power supply voltage to drive said plurality of drive wheels, wherein said brushless motor includes:

a stator; and

a rotor having a lateral surface opposed to said stator, and said stator comprises:

a plurality of radially extending iron cores, and

a plurality of windings for respectively generating magnetic fields in said iron cores, and said rotor comprises:

a plurality of permanent magnets, and

magnetic force line induction bodies located between said permanent magnets and said lateral surface.

Claim 34 (withdrawn): An electric car according to claim 33, wherein an output torque T of said brushless motor is given by a following equation:

$$T=p\{\phi\ I_a \cos(\beta) + (L_q - L_d) I_a^2 \sin(2\beta)/2\},$$

p being a half of a number of said plurality of permanent magnets, ϕ being a maximum armature flux linkage generated by said plurality of permanent magnets, I_a being an armature current, β being a phase of said armature current, L_d being a direct-axis inductance of said rotor, and L_q being a quadrature-axis inductance of said rotor, while the following equation:

$$L_q \fallingdotseq L_d,$$

does not hold.

Claim 35 (withdrawn): An electric car according to claim 33, wherein said rotor has a plurality of holes into each of which said plurality of permanent magnets are inserted in an axis direction of said rotor.

Claim 36 (withdrawn): An electric car according to claim 33, wherein three-phase direct currents are provided for said plurality of windings.

Claim 37 (withdrawn): An electric car according to claim 36, wherein said plurality of windings include:

a first set of windings, and

a second set of windings, and

wherein said first set of three-phase windings and said second set of three-phase windings are arranged to be symmetrical with respect to a line.

Claim 38 (withdrawn): An electric car according to claim 36, wherein said plurality of windings include:

a first group of three-phase windings, and

a second group of three-phase windings, and

wherein phase synchronous windings having said same phase of said first and second groups of three-phase windings are adjacent to each other in the same rotation direction, and

wherein said first group of three-phase windings comprise:

a first set of three-phase windings, and

a second set of three-phase windings, and said first set of three-phase windings and said second set of three-phase windings are arranged to be approximately geometrically symmetrical with respect to a line, and

wherein said second group of three-phase windings comprise:

another first set of three-phase windings and

another second set three-phase windings, and said other first set three-phase windings and said other second set of three-phase windings are arranged to be approximately geometrically symmetrical with respect to a line.

Claim 39 (withdrawn): An electric car according to claim 33, wherein a number of said windings is N, and a number of said permanent magnets is P, and said P is greater than said N.

Claim 40 (withdrawn): An electric car according to claim 39, wherein one of prime factors of said P is greater than any of prime factors of said N.

Claim 41 (withdrawn): An electric car according to claim 40, wherein said prime factors of said N includes 2 and 3, and

said prime factor of said P includes 2 and 7.

Claim 42 (withdrawn): An electric car according to claim 39, said P satisfies the following equation:

$12 \leq P \leq 30.$

Claim 43 (withdrawn): n electric car according to claim 39, wherein said N is 12 and said P is 14.

Claim 44 (withdrawn): An electric car according to claim 39, wherein a section of said permanent magnets on a flat plane vertical to a central axis of said rotor is rectangular,

said rectangle has short sides and long sides longer than said short sides, and

said long sides are opposed to said lateral surface.

Claim 45 (withdrawn): An electric car according to claim 33, wherein said permanent magnet has a shape of a substantially rectangular parallelepiped, and

a distance d between a center of said rotor and magnetic pole surfaces opposed to said lateral surface among surfaces of said plurality of permanent magnets satisfies a following equation:

$d \leq r - D/10,$

where

$D = 2\pi r / P,$

r being a radius of said rotor, and P being a number of said permanent magnets.

Claim 46 (withdrawn): An electric car according to claim 33, wherein a following equation:

$0 \leq (L_q\ L_d) / L_d \leq 0.3,$

holds, where L_q is a quadrature-axis inductance of said rotor, and L_d is a direct-axis inductance of said rotor.

Claim 47 (withdrawn): An electric car according to claim 33, wherein said magnetic force line inducing bodies comprise a direct axis magnetic force line inducing body for inducing magnetic fluxes in a direct axis direction of said rotor, and

wherein a gap extending in a quadrature axis direction of said rotor is formed in said rotor.

Claim 48 (withdrawn): An electric car according to claim 47, wherein a following equation:

$0 \leq (L_q\ L_d) / L_d$ £ 0.3,

holds, where L_q is a quadrature-axis inductance of said rotor, and L_d is a direct-axis inductance of said rotor.

Claim 49 (withdrawn): An electric train comprising:

a plurality of drive wheels;

a throttle lever;

a power supply voltage supplier for supplying a power supply voltage based on a movement of said throttle lever;

a brushless motor provided with said power supply voltage to drive said plurality of drive wheels, wherein said brushless motor includes:

a stator; and

a rotor having a lateral surface opposed to said stator, and said stator comprises:

a plurality of radially extending iron cores, and

a plurality of windings for respectively generating magnetic fields in said iron cores, and said rotor comprises:

a plurality of permanent magnets, and

magnetic force line induction bodies located between said permanent magnets and said lateral surface.

Claim 50 (withdrawn): An electric train according to claim 49, wherein an output torque T of said brushless motor is given by a following equation:

$$T=p\{\phi\ I_a \cos(\beta) + (L_q - L_d) I_a^2 \sin(2\beta)/2\},$$

p being a half of a number of said plurality of permanent magnets, ϕ being a maximum armature flux linkage generated by said plurality of permanent magnets, I_a being an armature current, β being a phase of said armature current, L_d being a direct-axis inductance of said rotor, and L_q being a quadrature-axis inductance of said rotor, while the following equation:

$$L_q \fallingdotseq L_d,$$

does not hold.

Claim 51 (withdrawn): An electric train according to claim 49, wherein said rotor has a plurality of holes into each of which said plurality of permanent magnets are inserted in an axis direction of said rotor.

Claim 52 (withdrawn): An electric train according to claim 49, wherein three-phase direct currents are provided for said plurality of windings.

Claim 53 (withdrawn): An electric train according to claim 52, wherein said plurality of windings include:

a first set of windings, and

a second set of windings, and

wherein said first set of three-phase windings and said second set of three-phase windings are arranged to be symmetrical with respect to a line.

Claim 54 (withdrawn): An electric train according to claim 52, wherein said plurality of windings include:

a first group of three-phase windings, and

a second group of three-phase windings, and

wherein phase synchronous windings having said same phase of said first and second groups of three-phase windings are adjacent to each other in the same rotation direction, and

wherein said first group of three-phase windings comprise:

a first set of three-phase windings, and

a second set of three-phase windings, and said first set of three-phase windings and said second set of three-phase windings are arranged to be approximately geometrically symmetrical with respect to a line, and

wherein said second group of three-phase windings comprise:

another first set of three-phase windings and

another second set three-phase windings, and said other first set three-phase windings and said other second set of three-phase windings are arranged to be approximately geometrically symmetrical with respect to a line.

Claim 55 (withdrawn): An electric train according to claim 49, wherein a number of said windings is N, and a number of said permanent magnets is P, and said P is greater than said N.

Claim 56 (withdrawn): An electric train according to claim 55, wherein one of prime factors of said P is greater than any of prime factors of said N.

Claim 57 (withdrawn): An electric train according to claim 56, wherein said prime factors of said N includes 2 and 3, and said prime factor of said P includes 2 and 7.

Claim 58 (withdrawn): An electric train according to claim 55, said P satisfies the following equation:

$12 \leq P \leq 30.$

Claim 59 (withdrawn): An electric train according to claim 55, wherein said N is 12 and said P is 14.

Claim 60 (withdrawn): An electric train according to claim 49, wherein a section of said permanent magnets on a flat plane vertical to a central axis of said rotor is rectangular,

said rectangle has short sides and long sides longer than said short sides, and

said long sides are opposed to said lateral surface.

Claim 61 (withdrawn): An electric train according to claim 49, wherein said permanent magnet has a shape of a substantially rectangular parallelepiped, and

a distance d between a center of said rotor and magnetic pole surfaces opposed to said lateral surface among surfaces of said plurality of permanent magnets satisfies a following equation:

$$d \leq r - D/10,$$

where

$$D = 2\pi r / P,$$

r being a radius of said rotor, and P being a number of said permanent magnets.

Claim 62 (withdrawn): An electric train according to claim 49, wherein a following equation:

$$0 \leq (L_q \ L_d) / L_d \leq 0.3,$$

holds, where L_q is a quadrature-axis inductance of said rotor, and L_d is a direct-axis inductance of said rotor.

Claim 63 (withdrawn): An electric train according to claim 49, wherein said magnetic force line inducing bodies comprise a direct axis magnetic force line inducing body for inducing magnetic fluxes in a direct axis direction of said rotor, and

wherein a gap extending in a quadrature axis direction of said rotor is formed in said rotor.

Claim 64 (withdrawn): An electric train according to claim 49, wherein a following equation:

$$0 \leq (L_q\ L_d) / L_d \leq 0.3,$$

holds, where L_q is a quadrature-axis inductance of said rotor, and L_d is a direct-axis inductance of said rotor.